

### **REMARKS**

Claims 33, 37-39, 41, 42, 47-49, 51, 53 and 55-59 are pending. Claims 33, 42 and 51 are independent. In view of the following remarks, reconsideration and allowance of this application, as amended, are respectfully requested.

#### **35 U.S.C. § 103(a) Rejection**

Claims 33 37-39, 41, 51, 53, 54 and 59 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanizawa in view of Vaudo et al. ("Vaudo"). Claims 42, 47-49, 55-57 and 58 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tanizawa in view of Vaudo. These rejections are respectfully traversed.

Claim 33 recites a combination of elements including "a first gallium nitride layer having a first conductivity...wherein the first InGaN layer is directly on the first gallium nitride layer." Claims 42 and 51 recites similar features as claim 33 in a varying scope. Tanizawa and Vaudo do not disclose or suggest these features.

The Office Action asserts that Tanizawa discloses "a first gallium nitride layer having a first conductivity." Applicant respectfully disagrees.

The Office Action asserts that the recited "first gallium nitride layer" corresponds to Taniazawa's top layer 5c made of undoped GaN. See paragraph [0096] of Tanizawa below. However, Applicant's first gallium nitride layer corresponds to P-type GaN layer, which is doped with impurities of Mg. See paragraph [0047] of Applicant's published application.

**[0095] (n-Side First Multi-Layered Film 5)**

**[0096]** Next, only silane gas is stopped and at 1050° C., using TMG and ammonia gas, a bottom layer **5a** made of undoped GaN is grown to the thickness of 3000 angstroms. Subsequently, at the same temperature, the silane gas is added and a middle layer **5b** made of GaN doped with Si to  $4.5 \times 10^{18}/\text{cm}^3$  is grown to the thickness of 300 angstroms. Further, only silane gas is stopped and at the same temperature, a top layer **5c** made of undoped GaN is grown to the thickness of 50 angstroms. Thus, the first multi-layered film **5** comprising three layers, which has a total thickness of 3350 angstroms, is formed.

Thus, Tanizawa does not disclose or suggest the features of claim 33, and similar features in claims 42 and 51. Further, Vaudo does not cure the deficiencies of Tanizawa. Vaudo merely discloses the (Ga, Al, In)N material being a large area having a defect density as low as  $3 \times 10^6$  defect  $\text{cm}^2$  or lower. However, Vaudo does not disclose or suggest “a first gallium nitride layer having a first conductivity...wherein the first InGaN layer is directly on the first gallium nitride layer,” as recited in claim 33, and similar features recited in claims 42 and 51. Therefore, Tanizawa and Vaudo, alone or in combination, do not disclose or suggest the features recited in claims 33, 42 and 51. Accordingly, Applicant respectfully requests withdrawal of the rejection of claims 33, 42 and 51, and their dependent claims, under 35 U.S.C. § 103(a).

CONCLUSION

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact James T. Eller, Jr. Registration No. 39,538 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

By

  
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